Complete Summary

GUIDELINE TITLE

Preventive health care, 2001 update: colorectal cancer screening.

BIBLIOGRAPHIC SOURCE(S)

Colorectal cancer screening. Recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ 2001 Jul 24;165(2):206-8. [20 references] PubMed

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Colorectal cancer

GUIDELINE CATEGORY

Screening

CLINICAL SPECIALTY

Colon and Rectal Surgery
Family Practice
Gastroenterology
Internal Medicine
Oncology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses

Physician Assistants
Physicians
Students

GUIDELINE OBJECTIVE(S)

To make recommendations on the effectiveness of specific screening techniques for colorectal cancer in asymptomatic patients

TARGET POPULATION

Asymptomatic people with no personal history of ulcerative colitis, polyps or colorectal cancer

INTERVENTIONS AND PRACTICES CONSIDERED

Screening Techniques

1. Multiphase screening that begins with testing for fecal occult blood or sigmoidoscopy
2. Uniphase screening with colonoscopy
3. Genetic counseling/testing

Note: Screening with digital rectal examination and double contrast barium enema were not considered because of the lack of direct evidence.

MAJOR OUTCOMES CONSIDERED

- Rates of cancer detection
- Deaths from colorectal cancer
- Compliance
- Feasibility and accuracy of each maneuver

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

MEDLINE was searched for English language articles published between January 1966 and January 2001 using the MESH terms "screening" and "colorectal neoplasia." The reference sections of review articles were used to cross-reference the MEDLINE search and content experts were canvassed to ensure that no relevant articles were missed. Articles concerning Hemoccult testing or flexible sigmoidoscopy, as the first step in a multiphase secondary prevention strategy, or colonoscopy, as a single-phase secondary prevention strategy in both asymptomatic and high-risk groups, were included.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of evidence was rated according to 5 levels:

I - Evidence from at least 1 properly randomized controlled trial (RCT).

II-1 - Evidence from well-designed controlled trials without randomization.

II-2 - Evidence from well-designed cohort or case-control analytic studies, preferably from more than 1 centre or research group.

II-3 - Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments could also be included here.

III - Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The 9 member Task Force of experts in family medicine, geriatric medicine, paediatrics, psychiatry and epidemiology used an evidence-based method for evaluating the effectiveness of preventive health care interventions. Recommendations were not based on cost-effectiveness. Patient preferences were not discussed. The lead author prepared a manuscript providing critical appraisal of the evidence. This included identification and critical appraisal of key studies, and ratings of the quality of this evidence using the Task Force's established methodological hierarchy. The resulting summary of proposed conclusions and

recommendations for consideration was presented and deliberated upon at 3 Task Force Meetings in January and June of 1999 and January 2000.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendation:

A. Good evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination (PHE).
B. Fair evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination.
C. Insufficient evidence regarding inclusion or exclusion of the condition or maneuver in a periodic health examination, but recommendations may be made on other grounds.
D. Fair evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.
E. Good evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

External Peer Review. After the Canadian Task Force on Preventive Health Care reached consensus, 4 experts in the field reviewed the manuscript and their suggestions were incorporated as needed.

Comparison with Guidelines from Other Groups. The Ontario Expert Panel on Colorectal Cancer recommends a multiphasic screening program, beginning with fecal occult blood testing, for people at normal risk between the ages of 50 and 75 years. The US Preventive Services Task Force recommends screening with either annual fecal occult blood testing or sigmoidoscopy (interval unspecified) or both for people over 50 years. A number of groups in the United States, including the American Cancer Society, the American College of Gastroenterology, the Crohn's and Colitis Foundation of America and the Oncology Nursing Society, recommend screening with fecal occult blood testing annually, flexible sigmoidoscopy every 5 years, combined fecal occult blood testing and flexible sigmoidoscopy, double-contrast barium enema every 5–10 years or colonoscopy every 10 years for people aged 50 or older with no other risk factors. These groups also made recommendations for people with additional risk factors: genetic counseling and possible genetic testing for those at risk of familial adenomatous polyposis and, for people with positive genetic test results, flexible sigmoidoscopy beginning at puberty. For people in kindreds with hereditary nonpolyposis colon cancer, annual

colonoscopy beginning between 20 and 30 years of age is recommended. These groups made screening recommendations for people with a family history of polyps or colon cancer similar to those for people at normal risk but beginning at age 40 rather than 50.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendation grade [A, B, C, D, E] and level of evidence [I, II-1, II-2, II-3, III] are indicated after each recommendation. Definitions for these grades and levels are repeated following the recommendations. Citations in support of individual recommendations are identified in the guideline text.

Average Risk Individuals

- Screening with the Hemoccult test: There is good evidence to include screening with Hemoccult test in the periodic health examination of asymptomatic patients over age 50 with no other risk factors (Gilbertsen et al., 1980; Mandel et al., 1993; Mandel et al., 1998; Mandel et al., 1989; Mandel et al., 1999; Kronborg et al., 1989; Jensen, Kronborg, & Fenger, 1992; Kronborg et al., 1996; Hardcastle et al., 1996; Hardcastle et al., 1989; Kewenter et al., 1994; Kewenter et al., 1988; Towler et al., 1998)[A,I]. However, there remain concerns about the high rate of false-positive results, feasibility and small clinical benefit of such screening (over 1000 individuals must be screened for 10 years to avert one death from colorectal cancer). For patients being screened with Hemoccult, it is recommended that they avoid red meat, cantaloupe and melons, raw turnips, radishes, broccoli and cauliflower, vitamin C supplements and aspirin and non-steroidal anti-inflammatory drugs for 3 days before fecal samples are collected. However, a recent meta-analysis of 4 randomized controlled trials found no improvement in positivity rates or change in compliance rates with moderate dietary restrictions.
- Screening with sigmoidoscopy: There is evidence from case control studies, to recommend that flexible sigmoidoscopy be included in the periodic health examination of patients over age 50 (Friedman et al., 1986; Selby et al., 1992; Newcomb et al., 1992; Muller & Sonnenberg, 1995; Gilbertsen, 1974; Gilbertsen & Nelms, 1960; Hertz, Deddish, & Day, 1960)[B, II-2, III]. There is insufficient evidence to make recommendations about whether only 1 or both of fecal occult blood testing and sigmoidoscopy should be performed (Verne et al., 1998; Berry et al., 1997; Rasmussen et al., 1999)[C, I].
- Screening with colonoscopy: There is insufficient evidence to include or exclude colonoscopy as an initial screen in the periodic health examination (Mandel et al., 1989; Winawer et al., 1993)[C, II-3]. Although colonoscopy is the best method for detecting adenomas and carcinomas, it may not be feasible to screen asymptomatic patients because of patient compliance and the expertise and equipment required and the potential costs. On the other hand, if colonoscopy were an effective screening strategy when performed at less frequent intervals, these issues might be of less concern.

Above Average Risk Individuals

- Individuals at Risk for Familial Adenomatous Polyposis (FAP): The Task Force recommends genetic testing of individuals at risk for familial adenomatous polyposis if the genetic mutation has been identified in the family and if genetic testing is available (Herrera et al., 1986; Bodmer et al., 1987; Leppert et al., 1987; Powell et al., 1993; Bapat et al., 1999)[B, II-3]. If the individual carries the mutation, then he or she should be screened with flexible sigmoidoscopy beginning at puberty (Bulow et al., 1995)[B, II-3]. Individuals from families where the gene mutation has been identified but are negative themselves, require screening similar to the average risk population. For at risk individuals where the mutation has not been identified in the family or where genetic testing is not available, screening with annual or biannual flexible sigmoidoscopy should be undertaken beginning at puberty. In all instances, genetic counseling should be performed prior to genetic testing.
- Individuals at Risk for Hereditary Non-Polyposis Colon Cancer (HNPCC): Patients in kindreds with the cancer family syndrome (HNPCC) have a high risk of colorectal cancer and a high incidence of right-sided colon cancer. Thus, colonoscopy rather than sigmoidoscopy is recommended for screening such patients. Based on Level III evidence, the Task Force recommends screening with colonoscopy in individuals from hereditary non-polyposis colon cancer kindreds (Vasen et al., 1994; Jarvinen et al., 2000; Lanspa et al., 1994)[B, II-3]. Although higher levels of evidence are usually required to give a B recommendation, the Task Force realizes that it is unlikely that more rigorous studies could be performed in this cohort of patients given the high risk of cancer and relative infrequency of hereditary non-polyposis colon cancer. The ages when screening should begin and the frequency at which colonoscopy should be performed are unclear.
- Individuals with a Family History of Polyps or Colon Cancer: Patients who have only one or two first-degree relatives with colorectal cancer should be screened in the same way as average risk individuals. There is insufficient evidence to recommend colonoscopy for individuals who have a family history of colorectal polyps or cancer but do not fit the criteria for hereditary non-polyposis colon cancer (Fuchs et al., 1994; Winawer et al., 1996; Ahsan et al., 1998; St. John et al., 1993; Rozen et al., 1987; Sackett et al., 1979; Pariente et al., 1998; Guillem & Forde, 1992; Sauar et al., 1992) [C, III]. While there is evidence that there is an increased prevalence of neoplasms in these individuals, there is insufficient information to recommend more intense screening than that of individuals at average risk. Further delineation of the risk for individuals with multiple affected family members and family members with early age of diagnosis of colorectal cancer is necessary.
- Because most screening options are multiphasic, it is preferable that there is adequate infrastructure to support the implementation, assure quality control and the timely follow-up of screened individuals.

Definitions:

Recommendation Grades:

A. Good evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination (PHE).
B. Fair evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination.

C. Insufficient evidence regarding inclusion or exclusion of the condition or maneuver in a periodic health examination, but recommendations may be made on other grounds.
D. Fair evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.
E. Good evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.

Quality of evidence was rated according to 5 levels:

I - Evidence from at least 1 properly randomized controlled trial (RCT).

II-1 - Evidence from well-designed controlled trials without randomization.

II-2 - Evidence from well-designed cohort or case-control analytic studies, preferably from more than 1 centre or research group.

II-3 - Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments could also be included here.

III - Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Maneuver:
Multiphase screening with the Hemoccult test for average risk adults older than age 50

Level of Evidence:
Randomized controlled trials and meta-analyses (I)

Maneuver:
Sigmoidoscopy for average risk adults older than age 50

Level of Evidence:
Case-control studies (II-2)
Case series (lll)

Maneuver:
Hemoccult/sigmoidoscopy in combination for average risk adults older than age 50

Level of Evidence:
Randomized controlled trial (I)

Maneuver:
Colonoscopy

Level of Evidence:
Randomized controlled trial (II-3)

Maneuver:
Flexible sigmoidoscopy for those with familial adenomatous polyposis

Level of Evidence:
II-3

Maneuver:
Genetic testing for those with familial adenomatous polyposis

Level of Evidence:
II-3

Maneuver:
Colonoscopy for those with hereditary nonpolyposis colon cancer

Level of Evidence:
II-3

Maneuver:
Colonoscopy for those with a family history of polyps/colorectal cancer (first degree relatives)

Level of Evidence:
III

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Hemoccult testing: There is evidence from randomized controlled trials that fecal occult blood testing results in a significant decrease in mortality from colorectal cancer, but not in overall mortality. The relative risk reduction is approximately 15% and in absolute terms, approximately 8.5 deaths from colorectal cancer would be averted if 10,000 people were screened over 10 years. The sensitivity of the test was approximately 50% in 3 of the trials and concern remains about the sensitivity of Hemoccult testing and the potential for false reassurance. The psychological issues of screening and the

acceptability of screening on a community basis have not been studied. Compliance rates have varied for both initial testing and follow-up investigations.

- Sigmoidoscopy: There is evidence from case control studies that sigmoidoscopy may reduce the risk of death from colorectal cancer. Randomized controlled trial evidence suggests that flexible sigmoidoscopy may be superior in detecting adenomas and possibly cancer than fecal occult blood testing. However, the trials are small and do not report mortality data. Therefore, the benefit of flexible sigmoidoscopy alone compared with fecal occult blood test or in combination with fecal occult blood test cannot be ascertained. However, there is fair evidence to suggest that sigmoidoscopy may reduce mortality from colorectal cancer. Flexible sigmoidoscopy may be preferable to rigid sigmoidoscopy, because the physician can examine the more proximal colon with the flexible sigmoidoscope than with the rigid one and thus detect more adenomas and carcinomas. The flexible sigmoidoscope may be more acceptable to patients and safer. Bowel perforations occur at a rate of 1.4 per 10,000 flexible sigmoidoscopic examinations of asymptomatic patients. It does require a more qualified examiner than rigid sigmoidoscopy.
- Colonoscopy: There is no direct evidence about the effectiveness of colonoscopy as a screening maneuver in asymptomatic, average risk individuals. Perforation rates are higher with colonoscopy than sigmoidoscopy, (approx 10 per 10,000 procedure). Since approximately 45% of cancers are right sided in hereditary nonpolyposis colorectal cancer families, colonoscopy is the preferred method of screening.

POTENTIAL HARMS

- A sequelae of false-positive or false-negative results from fecal occult blood tests (e.g., unnecessary investigations and false reassurance)
- Perforation (sigmoidoscopy 1.4 per 10,000 procedures; colonoscopy 10 per 10,000 procedures)
- Bleeding
- Anxiety and poor compliance

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation of preventive activities in clinical practice continues to be a challenge. To address this issue, Health Canada established a National Coalition of Health Professional Organizations in 1989. The purpose was to develop a strategy to enhance the preventive practices of health professionals. Two national workshops were held. The first focused on strengthening the provision of preventive services by Canadian physicians. The second addressed the need for collaboration among all health professionals. This process led to the development of a framework or "blueprint for action" for strengthening the delivery of preventive services in Canada (Supply and Services Canada: an Inventory of Quality Initiatives in Canada: Towards Quality and Effectiveness. Health and Welfare Canada, Ottawa, 1993). It is a milestone for professional associations and one that will have a major impact on the development of preventive policies in this country.

In 1991 the Canadian Medical Association spearheaded the creation of a National Partnership for Quality in Health to coordinate the development and implementation of practice guidelines in Canada. This partnership includes the following: the Association of Canadian Medical Colleges, the College of Family Physicians of Canada, the Federation of Medical Licensing Authorities of Canada, the Royal College of Physicians and Surgeons of Canada, the Canadian Council on Health Facilities Accreditation, and the Canadian Medical Association.

The existence of guidelines is no guarantee they will be used. The dissemination and diffusion of guidelines is a critical task and requires innovative approaches and concerted effort on the part of professional associations and health care professionals. Continuing education is one avenue for the dissemination of guidelines. Local physician leaders, educational outreach programs, and computerized reminder systems may complement more traditional methods such as lectures and written materials.

Public education programs should also support the process of guideline dissemination. In this context, rapidly expanding information technology, such as interactive video or computerized information systems with telephone voice output, presents opportunities for innovative patient education. The media may also be allies in the communication of some relevant aspects of guidelines to the public. All of these technologies should be evaluated.

The implementation of multiple strategies for promoting the use of practice guidelines requires marshaling the efforts of governments, administrators, and health professionals at national, provincial and local levels. It is up to physicians and other health professionals to adopt approaches for the implementation of guidelines in clinical practice and to support research efforts in this direction.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Colorectal cancer screening. Recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ 2001 Jul 24;165(2):206-8. [20 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001

GUIDELINE DEVELOPER(S)

Canadian Task Force on Preventive Health Care - National Government Agency [Non-U.S.]

SOURCE(S) OF FUNDING

The Canadian Task Force on Preventive Health Care is funded through a partnership between the Provincial and Territorial Ministries of Health and Health Canada.

GUIDELINE COMMITTEE

Canadian Task Force on Preventive Health Care (CTFPHC)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: McLeod R.

Members of the Canadian Task Force on Preventive Health Care

Chairman: Dr. John W. Feightner, Professor, Department of Family Medicine, University of Western Ontario, London, Ont.

Past Chairman: Dr. Richard Goldbloom, Professor, Department of Pediatrics, Dalhousie University, Halifax, NS.

Members: Drs. R. Wayne Elford, Professor and Chair of Research, Department of Family Medicine, University of Calgary, Calgary, Alta.; Michel Labrecque, Associate Professor and Director of Research, Department of Family Medicine and Centre Hospitalier Universitaire de Québec, Laval University, Quebec, Que.; Harriet MacMillan, Associate Professor, Departments of Psychiatry and Pediatrics and Centre for Studies of Children at Risk, McMaster University, Hamilton, Ont.; Robin McLeod, Professor, Department of Surgery, Mount Sinai Hospital and University of Toronto, Toronto, Ont.; Jean-Marie Moutquin, Professor, Department of Obstetrics and Gynecology and Saint-François d'Assise Research Centre, Laval University, Quebec, Que.; Christopher Patterson, Professor and Head, Division of Geriatric Medicine, Department of Medicine, McMaster University, Hamilton, Ont.; Elaine E.L. Wang, Associate Professor, Departments of Pediatrics and Public Health Sciences, Faculty of Medicine, University of Toronto, Toronto, Ont.

Resource people: Nadine Wathen, Coordinator, and Tim Pauley, Research Assistant, Canadian Task Force on Preventive Health Care, Department of Family Medicine, University of Western Ontario, London, Ont.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not Stated

GUIDELINE STATUS

This is the current release of the guideline. This guideline updates and replaces previous recommendations published by the Canadian Task Force on Preventive Health Care (CTFPHC) (Screening for colon cancer. CMAJ 1994 Jun 15;150[12]:1961-70.)

A complete list of planned reviews, updates and revisions is available under the What's New section at the CTFPHC Web site.

GUIDELINE AVAILABILITY

Electronic copies: An HTML file is available from the Canadian Medical Association Journal (CMAJ) Online.

A Portable Document Format (PDF) file is also available. Additional information is available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.

Print copies: Available from Canadian Task Force on Preventive Health Care, 100 Collip Circle, Suite 117, London, Ontario N6G 4X8, Canada; e-mail, ctf@ctfphc.org.

Also available from Health Services Directorate, Health Services and Promotion Branch, Department of National Health and Welfare, Tunney's Pasture, Ottawa ON K1A 1B4, Canada.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

1. McLeod R (with the Canadian Task Force on Preventive Health Care). Screening strategies for colorectal cancer: systematic review and recommendations. London (ON): Canadian Task Force on Preventive Health Care, 2001 Feb. 35 p. (CTFPHC technical report; no. 01-2). Print copies: Available from CTFPHC, St. Joseph's Health Centre - Parkwood Site, Room A-575, 801 Commissioners Road East, London, Ontario, N6C 5J1, Canada; e-mail, ctf@ctfphc.org.
2. Stachenko S. Preventive guidelines: their role in clinical prevention and health promotion. Ottawa: Health Canada, 1994. Available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site.
3. CTFPHC history/methodology. Ottawa: Health Canada, 1997. Available from the CTFPHC Web site.
4. Quick tables of current recommendations. Ottawa: Health Canada, 1997. Available from the CTFPHC Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on December 7, 1999. The information was verified by the guideline developer on February 24, 2000. The summary was updated by ECRI on October 12, 2001. The updated information was verified by the guideline developer as of November 2, 2001.

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